

REMARKS

Reconsideration of the present application is respectfully requested.

Claims 1 – 6 and 9 – 11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,323,529 to Nagahara in view of U.S. Patent No. 6,245,593 to Yoshihara *et al.* (Yoshihara). This rejection is respectfully traversed.

Claims 1 and 9 recite the novel embodiment shown, for example, in FIG. 1 in which a semiconductor dynamic sensor includes a sensor chip 5 mounted on a substrate 3 by a film, such as, for example, an adhesive film 4. The adhesive film 4 prevents misalignment of the sensor chip 5 on the substrate 3 that might otherwise occur if a die bond resin or an adhesive agent is used as shown in FIGs. 4A and 4B. More specifically, it is difficult to precisely position a sensor chip on a substrate if a die bond resin or adhesive agent is used because the resin or adhesive tends to flow during curing and therefore causes the sensor chip to move (i.e. lift up or rotate) relative to the circuit board during curing.

Nagahara discloses a semiconductor acceleration sensor in which a signal-processing chip 5 is mounted on an acceleration sensor chip 3, with the acceleration sensor chip 3 being connected to a die pad 11 by a die bond resin 13. However, as stated by the Examiner, Nagahara does not teach or suggest positioning a sensor chip on a substrate using an adhesive film.

Yoshihara discloses a method for fabricating semiconductor devices having mechanically weak structures such as acceleration sensors with movable portions. More particularly, Yoshihara discloses utilizing an adhesive sheet 2 composed of a flat sheet member 2a and

adhesive 2b for providing a protective cap that that protects the sensing portions 2 during dicing. (See col. 6, lines 13 – 17). However, Yoshihara fails to teach or suggest utilizing the adhesive sheet 2 for connecting a semiconductor sensor chip to a substrate. Rather, Yoshihara discloses that the adhesive sheet 2 connects a semiconductor wafer 1 to a flat plate 4 for removing static electricity. (See col. 3, lines 60 – 67). Further, the adhesive sheet 2 is not present in the completed semiconductor devices after fabrication. Rather, the adhesive sheet 2 is removed as shown in FIG. 4A at an adhesion entirely reducing step. (See col. 5, lines 12 – 21).

Further regarding the rejection of claim 1 and 9, the Examiner has asserted that one skilled in the art would have been motivated to use Nagahara according to the teachings of Yoshihara to test a sensor chip that is connected to a substrate via an adhesive film and place the film between the substrate and the sensor chip. Applicant respectfully submits that one skilled in the art would not be motivated to utilize the adhesive sheet of Yoshihara as asserted by the Examiner because this adhesive sheet 2 cannot connect a sensor chip to a substrate. More specifically, the adhesive sheet 2 only provides adhesion on a first side 2b. Referring to, for example, col. 3, line 63 of Yoshihara, the flat sheet member 2a (the second side) is connected to the plate 4 by only vacuum attraction via a through hole in the plate 4a. There is no such through hole in the substrate of Nagahara.

Therefore, because neither Nagahara nor Yoshihara, either singly or in combination, teaches or suggests a sensor chip positioned on a substrate by an adhesive film and because one skilled in the art would not be motivated to modify Nagahara to utilize the adhesive sheet of Yoshihara, Applicant respectfully requests that the Examiner's rejection of claims 1 and 9, as well as dependent claims 2 – 6 and 10 – 11 be withdrawn.

Further regarding the rejection of claims 4 – 5, the Examiner has asserted that these claims recite a mere change in size of a prior art device. The Examiner has cited the case of In re Rose as support for this assertion. This rejection is respectfully traversed.

The Examiner has asserted that the claimed ranges of an adhesive film having a thickness that is less than 50 μm and an elasticity coefficient that is less than 3000 mega Pascals are mere design choices. Applicants respectfully disagree. As disclosed on, for example, pg. 13, lines 13 – 15, these particular ranges were chosen because of the superior results that such ranges produce; namely, a temperature-dependency of offset outputs that does not exceed 50 mV. A *prima facie* case of obviousness is rebutted by proof of unexpected or superior results. (See MPEP 2144.09 Aug. 2001).

Further, The prior art must provide a motivation or reason for the [change] without the benefit of [applicant's] specification, to make the necessary changes in the reference device.” See *Ex parte Chicago Rawhide Mfg. Co.*, 223 U.S.P.Q. 351, 353 (Bd. Pat. App. & Inter. 1984; also discussed in MPEP 2144.04 VI(c) Seventh Edition Rev. 1, Feb. 2000). The Examiner has not presented in evidence of motivation to one of ordinary skilled in the art to have modified the thickness and elasticity of the adhesive sheet in Yoshihara.

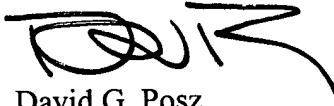
Therefore, because the Examiner has been unable to present any references that provide a motivation or reason for modifying the thickness and elasticity coefficient of the adhesive sheet, and because of the claimed thickness and elasticity coefficient of the adhesive sheet leads to the superior result of a temperature-dependency of offset outputs that does not exceed 50 mV, it is respectfully requested that the rejection of claims 4 – 5 under 35 U.S.C. 103(a) be withdrawn.

New claims 12 – 18 are presented for examination. These claims recite features that further distinguish the present invention from the art of record. Support for these new claims can be found in, for example, FIG. 1 and on pgs. 12 – 13.

As the application is in condition for allowance for the above stated reasons, Applicant respectfully requests that the Examiner issue a Notice of Allowance as soon as possible.

Permission is hereby given to charge any unanticipated fees to Deposit Account No. 50-1147.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'DGP', with a long horizontal stroke extending to the right.

David G. Posz
Reg. No. 37,701

DGP/ksc
Posz & Bethards, PLC
11250 Roger Bacon Drive
Suite 10
Reston, VA 20190
Phone: (703) 707-9110
Customer No. 23400